TELEVISION PICTURE TUBE TYPE 19BWP4

114° Magnetic Deflection
Rectangular Glass
Aluminized Screen
Gray Filter Glass

6.3 Volt, 450 Ma. Heater
Electrostatic Focus
Short Neck Length

External Conductive Coating
Spherical Faceplate
No Ion Trap
12" x 15-1/8" Screen Size

ELECTRICAL:

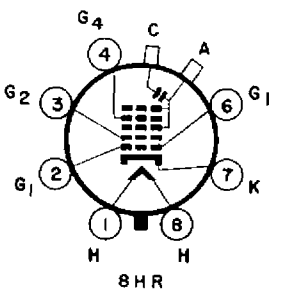
Focusing Method	Low Voltage Electrostatic	
Deflection Method	Magnetic	
Deflection Angles (Approx.):		
Horizontal	103	Degrees
Vertical	86	Degrees
Diagonal	114	Degrees
Direct Interelectrode Capacitances:		
Cathode to all other electrodes, (Approx.)	5	μμf
Grid 1 to all other electrodes, (Approx.)	6	μμf
External Conductive Coating to Anode:		
Maximum	1500	μμf
Minimum	1000	μμf
Heater Current at 6.3 volts	450 ± 5%	Ma.
Heater Warm-up Time (Note 1)	11	Seconds

OPTICAL:

Phosphor Number	Aluminized P4	
Light Transmittance at Center, Approximate	78	Percent

MECHANICAL:

Overall Length	11-3/4 ± 1/4	Inches
Greatest Dimensions of Tube:		
Diagonal	18-5/8 ± 1/8	Inches
Width	16-13/32 ± 1/8	Inches
Height	13-11/32 ± 1/8	Inches
Minimum Useful Screen Dimensions (Projected):		
Diagonal	17-9/16	Inches
Horizontal	15-1/8	Inches
Vertical	12	Inches
Area	172	Sq. Inches
Neck Length	4-1/2 ± 1/8	Inches
Bulb	J149A1	
Bulb Contact	J1-21	
Base	B7-208	
Basing	8HR	
Weight	13-1/2	Pounds



8HR

RATINGS:

Design Maximum System

Unless Otherwise Specified, Voltage Values are Positive with Respect to Grid 1.

Maximum Anode Voltage	23500	Volts
Minimum Anode Voltage (Note 2)	12000	Volts
Maximum Grid 4 Voltage (Focusing Electrode)	+1100, -550	Volts
Maximum Grid 2 Voltage	700	Volts
Cathode Voltage:		
Maximum Negative Value	0	Volts DC
Maximum Negative Peak Value	2	Volts
Maximum Positive Value	154	Volts DC
Maximum Positive Peak Value	220	Volts
Maximum Heater-Cathode Voltage		
Heater negative with respect to cathode		
During warm-up period not to exceed 15 seconds	450	Volts
After equipment warm-up period	200	Volts
Heater positive with respect to cathode	200	Volts

TYPICAL OPERATING CONDITIONS:

CATHODE DRIVE SERVICE:

Unless Otherwise Specified, All Voltage Values are Positive with Respect to Grid 1.

Anode Voltage	20000	Volts DC
Grid 4 Voltage (Focusing Electrode)	250	Volts DC
Grid 2 Voltage (Note 3)	500	Volts DC
Cathode Voltage for raster cutoff	45 to 95	Volts DC

LIMITING CIRCUIT VALUES:

Maximum Grid 1 Circuit Resistance	1.5	Megohms
Minimum Grids 2 & 4 Circuit Resistance (Note 4)	10000	Ohms

1. Heater warm-up time is defined as the time required for the voltage across the heater to reach 80% of its rated value after applying 4 times rated heater voltage to a circuit consisting of the tube heater in series with a resistance equal to 3 times rated heater voltage divided by rated heater current.

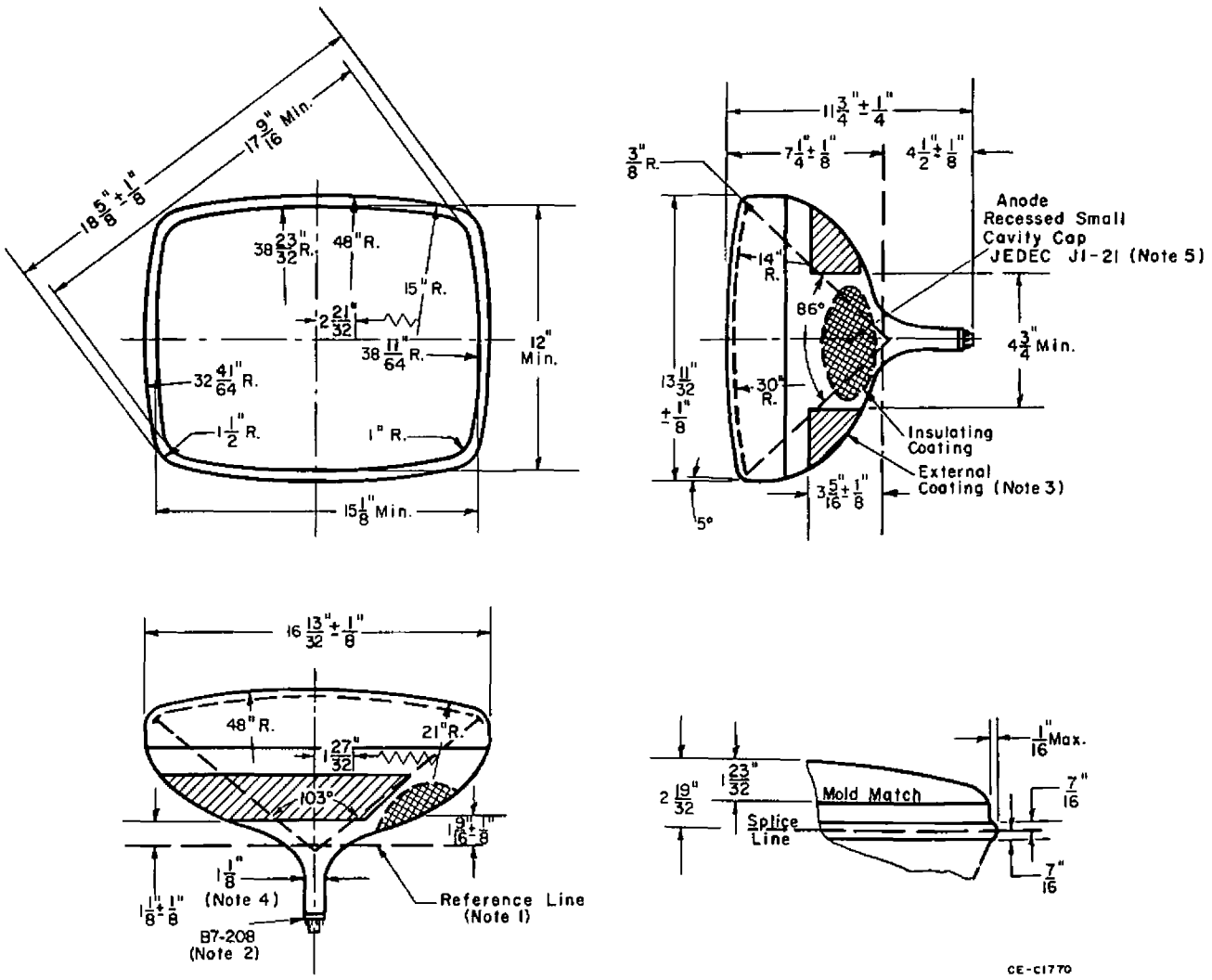
2. Brilliance and definition decrease with decreasing anode voltage. Operation with anode voltage less than 12000 volts in not recommended.

3. It is recommended that not less than 300 volts on Grid 2 be used, as resolution is affected at lower voltages.

4. Protective resistance in the grid 2 and grid 4 (focus electrode) circuits is advisable to prevent damage to the tube.

X-RAY WARNING: Operation with voltages in excess of 16KV may require shielding to limit radiation of very soft x-rays.

from JEDEC release #3450, Oct. 16, 1961



NOTE 1: Yoke Reference Line is determined by plane C-C' of JEDEC Reference-Line Gauge No. 126 when seated on funnel of tube. With a minimum neck length tube, the PM centering magnet (2 to 8 gauss) should extend no more than 2-1/8" from Yoke Reference Line.

NOTE 2: Lateral strains on the base pins must be avoided. The socket should have flexible leads permitting free movement. The perimeter of the base wafer will be inside a 1-3/4" diameter circle concentric with tube axis.

NOTE 3: External conductive coating forms supplementary filter capacitor and must be grounded.

NOTE 4: Neck diameter may be a maximum of 1.168" at the splice.

NOTE 5: Anode terminal alignment with pin 4 has angular tolerance about tube axis of ±30°.